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The Quality Reference Framework for MOOC Design

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Abstract. This paper introduces "The Quality Reference Framework (QRF) for the Quality of MOOCs". It was developed by the European Alliance for the Quality of Massive Open Online Courses (MOOCs), called MOOQ that could involve in the QRF finalization more than 10,000 MOOC learners, designers, facilitators and providers. The QRF consists of three dimensions: Phases, Perspectives and Roles. It includes two quality instruments: the QRF Key Quality Criteria for MOOC experts and QRF Quality Checklist for MOOC beginners.

Keywords: Quality Reference Framework · Massive Open Online Courses · MOOC design · MOOC quality · QRF Key Quality Criteria · QRF Quality Checklist

1 The QRF - Based on Truly International Collaboration

"The Quality Reference Framework (QRF) for the Quality of MOOCs" [13] was developed by the European Alliance for the Quality of Massive Open Online Courses (MOOCs), called MOOQ. MOOQ was started due to the huge demand for improving the quality of MOOCs from research [7–10, 16, 17] and from practice [4, 6, 10, 11]. Overall, MOOQ could address and reach out to more than 100,000 MOOC learners, designers, facilitators and providers through dissemination and exploitation activities. The main objective of MOOQ was the development of the QRF that was finalized and published in the year 2018 after more than three years of revisions and refinements [13]. In close cooperation with leading European and international institutions and associations, MOOQ could involve in the QRF finalization more than 10,000 MOOC learners, designers, facilitators and providers through divers means including the Mixed Methods research with the Global MOOC Quality Survey (GMQS), MOOQ presentations and workshops at regional and international conferences and communication and collaboration in traditional and social media [12, 14].

2 The Three Dimensions of the QRF

The QRF consists of three dimensions: 1. Phases, 2. Perspectives and 3. Roles (see below). These three dimensions were carefully selected, discussed and agreed with all MOOC stakeholder groups to cover the different views, requirements and responsibilities during the lifetime of a MOOC. They are mainly based on the results from the

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Mixed Methods research by MOOQ [12, 14, 15]: That included the realization and evaluation of the first Global MOOC Quality Surveys (for MOOC learners, designers and facilitators), the 27 semi-structured interviews conducted with MOOC experts (designers, facilitators and providers) and the MOOQ Workshops at eight international conferences (ICDE 2015 in Sun City, South Africa, OE Global 2016 in Krakow, Poland, EC-TEL 2016 in Lyon, France, OE Global 2017 in Cape Town, South Africa, IEEE EDUCON 2017 in Athens, Greece, ICALT 2017 in Timisoara, Romania, EARLI 2017 in Tampere, Finland and EC-TEL 2017 in Tallinn, Estonia). Furthermore, the QRF has adapted the International learning quality standard ISO/IEC 40180 (former ISO/IEC 19796-1) to the specific requirements and needs for MOOCs.

The first dimension of the QRF is called "Phases" and consists of five phases that normally overlap and can be repeated in iterative cycles:

Analysis (A): identify and describe requirements, demands and constraints
Design (D): conceptualise and design the MOOC
Implementation (I): implement a MOOC draft and finalize it through testing
Realization (R): realise and perform the MOOC including support and assessment
Evaluation (E): define, run and analyse the evaluation and improve the MOOC

The second dimension of the QRF is called "Perspectives" and distinguishes three perspectives that have to be addressed and focused during the different phases:

Pedagogical (P): how has **the** MOOC to be designed and developed?
Technological (T): how **has** the MOOC to be implemented and realized?
Strategic (S): how has the MOOC to be managed and offered?

The third dimension of the QRF is called "Roles" and covers three roles and indicates their involvement and responsibilities in relation to the phases and perspectives:

Designer: Designer includes content experts, content authors, instructional designers, experts for MOOC platforms, technology-enhanced learning and digital media as well as any others who may contribute to the design of a MOOC.

Facilitator: Facilitator includes the pedagogical facilitators and experts with content knowledge (such as moderators, tutors, teaching assistants) who manage forum, provide feedback and monitor learning progress, the technical facilitators (such as technical support for learners) as well as others who may contribute to support participants in their learning process in a MOOC.

Provider: Provider includes the (internal and external) MOOC providers, the technical providers (such as technology providers, programmers, software designers and developers), managers, communication and marketing staff as well as others who are involved in the decision-making processes leading to the delivery of a MOOC.

3 The Structure of the QRF and Its Usage and Benefits

The QRF presents the quality framework as general template to be adapted together with two applications: the QRF Key Quality Criteria and the QRF Checklist. The general framework of the QRF is a table that has to be adapted and completed. It integrates the three dimensions into a holistic quality framework that can be used for different purposes and by different user groups answering the needs identified by current research [1–3, 5]. To demonstrate the opportunities and to provide an easier start for its usage, the QRF offers and presents two instruments for two user groups: the QRF Key Quality Criteria for MOOC experts and the QRF Checklist for MOOC beginners.

The QRF Key Quality Criteria are provided in a table for experienced MOOC designers, facilitators and providers. They are intended as support for analysing, designing, implementing, realizing and evaluating a MOOC. The QRF Key Quality Criteria are defined as action items for potential activities in the different processes.

The QRF Quality Checklist presents leading questions for all three QRF dimensions. They are intended for both, beginners and experts in the MOOC design and development. Therefore, the QRF Quality Checklist serves as a starting point and a reminder on critical issues to be addressed. It complements the QRF Key Quality Criteria that defines the phases and processes of the MOOC design and development.

To use the QRF, it is most important to adapt it to own specific needs. MOOC designers, facilitators and providers have to select and define the relevant phases including their perspectives and roles according to their own situation, learning objectives, target groups, context and further conditions. Such adaptations should be documented to inform all involved stakeholders as well as to allow their review in the evaluation and further improvement of the MOOCs.

There are four core benefits of the QRF: First, the QRF provides a generic framework that can be adapted to each specific context. Second, the QRF identifies key quality criteria for better orientation on the MOOC design. Third, the QRF presents a checklist for the quality development and evaluation of MOOCs. And fourth, the QRF enables a continuous improvement cycle for MOOC design and provision.

4 Innovative Impact and Conclusions

The QRF has already achieved direct short-term innovative impact: It was used for the design and implementation for the development of two MOOCs as pilot implementations. They were following different pedagogical approaches (one xMOOC as traditional online course and one cMOOC for collaborative online learning). In both cases, the usage of the QRF was considered as very helpful by the MOOC designers and leading to reduced efforts due to the design support provided by the QRF.

Thus, the QRF will achieve long term innovative impact for the development of MOOCs, too. In addition, the QRF will also help MOOC providers and MOOC facilitators to improve the provision and facilitation of future MOOCs: The QRF Key Quality Criteria and the QRF Quality Checklist are addressing all stakeholder groups offering support for beginners as well as experts.

The QRF can be downloaded for free with an open Creative Commons license CC-BY from: www.MOOC-quality.eu/QRF. It is the first and unique guideline for the quality of MOOCs based on Mixed Methods research and involvement of the global MOOC community. The QRF Quality Checklist offers MOOC beginners an easy tool for the design and implementation of a first MOOC. And the QRF Key Quality Criteria support MOOC experts to continuously evaluate and improve their MOOC designs. Thus, the QRF will improve the future MOOCs and online learning in general.

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